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|-----------------|-------------|----------------------|---------------------|------------------|
| 09 442,038      | 11 17 1999  | YOSHIYUKI YONEDA     | 960942A             | 5343             |

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EXAMINER

HA, NATHAN W

ART UNIT PAPER NUMBER

2814

DATE MAILED: 05 21 2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/442,038

Applicant(s)

YONEDA ET AL.

Examiner

Nathan W. Ha

Art Unit

2814

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 31 March 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 2,5,7-10,15,18,20-22,27-41 and 44-50 is/are pending in the application.
- 4a) Of the above claim(s) 27-33 and 39-41 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 2,5,7-10,15,18,20-22,34-38 and 44-50 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 2, 5, 7-10, 15, 18, 20-22, and 34-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hiroshi, previously cited, in view of Atsushi, previously cited.

In regard to claims 2, 7-10, 15, 20-22, and 34-36, in figs. 2-4, Hiroshi discloses a semiconductor device comprising:

a chip 13;

a resin package 16 sealing the chip, the resin package having resin projections located on a mount-side surface of the resin package, the projections projecting from a bottom surface of the device therein, see fig. 2;

The chip being provided on the first resin portion 11 and covered by the second resin portion 16;

connecting parts having bonding wire 15 and connection electrode 13a; metallic films 12 provided to the connection electrodes of the connecting parts.

Referring to figure 7, the resin projection 38 having through hole 34 which the connection electrodes 33 extend to the metallic film 32 as claimed in claim 9.

Hiroshi further discloses that the metallic film provided on the bottom of the resin projections except the sides of the projections therein. Atsushi, in figs. (a-b), discloses an analogous semiconductor device including resin projections 6 and a metallic film that covering the projections on the bottom and the sides in order to make connections to the upper electrodes as seen in figs 1-2.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to use the metallic film as taught by Atsushi in Hiroshi in order to make connections to the upper electrodes.

In regard to claim 10, Hiroshi further discloses the first resin portion 11 comprising a resin tape 14, see fig. 2.

In regard to claim 34, Atsushi further discloses the metallic films are flush with the mount-side surface and exposed therefrom, see figs. 4b-5.

In regard to claims 35-36, see Atsushi's figs. 1-2.

Claims 37-38 and 44-50 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hiroshi and Atsushi as applied to claims 34-36 and further in view of Hosomi et al. (previous applied).

Hiroshi as taught by Atsushi discloses most aspects of the instant invention (paragraph 2) except for the metallic films comprising a plurality of metallic layer which are stacked and the connecting parts comprising bumps provided between the electrode pads of the chip and the metallic films.

Referring to figure 11, Hosomi et al. teach forming a metallic films 3 comprising a plurality of metallic layer which are stacked and the connecting parts comprising bumps 6

provided between the electrode pads of the chip and the metallic films to improve intensity of adhesion between the bump electrode and the electrode pad (column 1, lines 29-30 and 32-33). It would be obvious to one having ordinary skill in the art of the time the invention was made to form a bump between the electrode pads of the chip and metallic films as taught by Hosomi et al. in the device of Hiroshi to improve intensity of adhesion between the bump electrode and the electrode pad.

### ***Response to Arguments***

3. Applicant's arguments filed 3/31/03 have been fully considered but they are not persuasive. For instance, in response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, the portion 1 of the Atsushi can be used to replace the bottom portion of the Hiroshi's device. This combination produces the structure that has conductive layer which covers the bottom and the sides of the projection portion as claimed. This combination is also proper since the connections to carry the signals from the chip are made through the conductor 2.

4. Applicants further state that there is no resin projection in Hiroshi. It's noted that the Office clearly understands this limitation. As previously addressed, the projection portions in Hiroshi are surrounded by elements 10.

5. Applicants repeatedly argue that the insulative "resin film" is not the same as "resin tape". This is not persuasive. As previously mentioned, the resin 14 in Hiroshi is an adhesive material and can be considered as a resin tape. This resin layer performs the same function as the tape that disclosed in claim 34. The onus is on Applicants to showing the different of these layers. The metallic layer 2 is flush with the surface as mentioned above; see also fig. 4b-5 of Atsushi.

### ***Conclusion***

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nathan W. Ha whose telephone number is (703) 305-3507. The examiner can normally be reached on M-TH 8:00-7:00(EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wael Fahmy can be reached on (703) 308-4918. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and 308-3432 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Nathan Ha  
May 17, 2003

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